



UNIVERSITI PUTRA MALAYSIA

**A COMPARATIVE ADVANTAGE OF LIVESTOCK PRODUCTION IN
BRUNEI DARUSSALAM**

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**A COMPARATIVE ADVANTAGE OF LIVESTOCK PRODUCTION IN
BRUNEI DARUSSALAM**

By

HAJI ANJAH@AMZAH BIN HAJI ABDUL RAHMAN

**Thesis Submitted in Fulfilment of the Requirements for the Degree of
Doctor of Philosophy in the Faculty of Economics and Management
Universiti Putra Malaysia**

May 2000



DEDICATION

To

**Allahyarham Ayahanda Haji Abdul Rahman
&
Allahyarhammah Bonda Hajah Jauyah**

Jasa Kamu Tetap Ku Kenang

**Allahyarham DD Fandi
&
Allahyarhammah Alai Fizah**

Hormat Ku Pada Kegigihan

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirements for the degree of Doctor of Philosophy.

A COMPARATIVE ADVANTAGE OF SELECTED LIVESTOCK PRODUCTION IN NEGARA BRUNEI DARUSSALAM

By

HAJI ANJAH @ AMZAH BIN HAJI ABDUL RAHMAN

May 2000

Chairman : Associate Professor Zainal Abidin Mohamed, PhD.

Faculty : Economics and Management

Brunei policy measures are geared toward conserving foreign exchange. Presently, government bans the importation of eggs and regulates the importation of fresh, chilled and frozen beef and chicken meat while the importation of live animals is subjected to stringent health measures. While the local production is given a tremendous supports likes the provision of basic infrastructure facilities, input subsidies and output price control. These give repercussions to the whole economy and play a role in directing the course of the industry.

Primary data through census were collected in 1998 where a total of 94 broiler farms, 21 layer farms, 1 feedlot beef operator and 4 commercial goat farms were involved. Indicators of NPR, EPR, DRC, RCR and NEB were used to estimate the impact of government intervention and comparative advantage. Prior to these, the cost and the profit performance are analysed in financial and economic terms.

The results appear that the policy of the government give a minimal impact to the domestic production. A wedge between domestic and border price give slight protection to domestic producers' ranges from a minimum NPR of 6.83 percent in broiler to 95.12 percent in goat. EPR in egg based on farm size ranges from 175 percent in very large to 748 percent in medium. Even though the layer farms are protected, their continued existence, remain doubtful. This is true, that the small and medium failed to sustain their growth as shown by negative social profitability, and is an indication of inefficient producing units and so with other livestock commodities except in very large layer and broiler and goat farm. The lowest EPR is broiler having an average of 120 percent, while in the goat is 239.03 percent.

The analysis of private profitability shows that all enterprises are generating profit. Financially, the highest profit recorded is the goat production by \$8.7533 per kilogram dressed weight. In egg, the very large farm generates the highest positive private profit among its category by \$33.5344 per 100 dozen. There is also a profit in all broilers farms.

The results of DRC, RCR and NEB show comparative disadvantage except for very large layer and broiler farm and goat. A lower the cost of production vis-à-vis efficiently operated attributes the source of comparative advantage. The non-ruminant is proven to be more effective in saving the foreign exchange and followed by goat. Therefore, recommendation should be concentrated on the promotion of the non-ruminant and goat sectors, continues provision of the critical infrastructure support in the form of comprehensive R&D, credit and marketing is a priority.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah.

**FAEDAH BERBANDING PENGELUARAN TERNAKAN DI NEGARA
BRUNEI DARUSSALAM**

Oleh

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Dasar-dasar Pertanian Negara menjerumus kearah penjimatan mata wang asing kerana diakui bahawa kekurangannya akan memudaratkan ekonomi. Di atas pertimbangan ini maka pemilihan industri untuk dimajukan adalah menjadi tugas utama. Sehubungan dengan ini, pengusaha tempatan diberikan berbagai sokongan dan dorongan manakala impot dibekukan (telor) dan daging dibataskan kepada kehalalan penggunaanya sahaja. Sementara itu, kemasukan ternakan hidup terpaksa melalui satu pemeriksaan kesihatan ternakan yang ketat. Langkah-langkah ini telah memberi kesan mendalam terhadap ekonomi negara dan telah memainkan peranan penting dalam merangka hala tuju industri ini.

Data primer melalui bancian telah dilakukan pada tahun 1998 di peringkat ladang dan selepas ladang. Sejumlah 94 buah ladang ayam pedaging, 21 buah ladang ayam penelor, sebuah fedlot kerbau/lembu dan 4 buah ladang kambing komersial diseluruh Negara telah terlibat dalam bancian ini. Data-data dianalisis bagi Kadar

Perlindungan Nominal (NPR) dan Kadar Perlindungan Efektif (EPR). Manakala sukat-sukat DRC, RCR dan NEB juga digunakan bagi mengetahui kedudukan persaingan industri ini sebagai penggantian impot. Sebelum itu, analisis kewangan dan ekonomi juga telah dilaku.

Hasilnya mendapati bahawa Kerajaan telah memberi perlindungan kepada pengeluaran tempatan. Selisih harga tempatan dengan harga sempadan diantara 6.83 peratus (daging ayam) sehingga 95.12 peratus (daging kambing). EPR dalam pengeluaran telur tempatan dilindungi diantara 175 peratus (ladang terlalu besar) hingga 748 peratus (ladang sederhana). Pengeluaran telur bagi ladang berskala kecil dan sederhana menunjukkan keuntukan sosial yang negatif. Ini bererti ladang-ladang tersebut tidak akan dapat bertahan jika bantuan kerajaan dibatasi.

Pendapatan swasta menunjukkan keuntungan positif bagi semua perusahaan. Keuntungan tertinggi ialah pengeluaran daging kambing sebanyak \$8.7533 sekilogram bersih. Ladang terlalu besar telur ayam mencatatkan keuntungan tertinggi dikalangan kategori mereka sebanyak \$33.5344 bagi 100 dozen.

Hasil analisis DRC, RCR dan NEB menunjukkan ladang berskala terlalu besar (ayam pedaging dan penelor) dan kambing sahaja mengalami faedah berbanding dan terbukti mampu menjimatkan pertukaran matawang asing, Jadinya adalah disyorkan supaya tumpuan usaha kemajuan dan pembangunan kerajaan selanjutnya difokus keatas kedua-dua sektor industri ini.

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I certify that an Examination Committee met on 15 May 2000 to conduct the final examination of Haji Anjah @ Amzah bin Haji Abdul Rahman on his Doctor of Philosophy thesis entitled "A Comparative Advantage Of Livestock Production in Brunei Darussalam" in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

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DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.



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GLOSSARY

ADG	= Average Daily Gain
AP	= Accounting Price
ASEAN	= Association of South East Asian Nation
B\$	= Brunei Dollar
CF	= Conversion Factor
c.i.f.	= Custom, Insurance, Freight
DoA	= Department of Agriculture
DOC	= Day Old Chicks
DRC	= Domestic Cost Ratio
EPU	= Economic Planning Unit
EPC	= Economic Protection Coefficient
EPR	= Effective Protection Rate
f.o.b.	= Free on Board
GDP	= Gross Domestic Product
GPS	= Grand Parent Stock
IT	= Import Tariff
IMF	= Ideal Multifeed Farm
MIPR	= Ministry of Industry and Primary Resources
MIS	= Management of Information System
MP	= Market Price
MVS	= Medicines, Vaccines and Supplements
NEB	= Net Economic Benefit
NPC	= Nominal Protection Coefficient
NPR	= Nominal Protection Rate
OER	= Official Exchange Rate
PAM	= Policy Analysis Matrix
PKC	= Palm Kernel Cake
PS	= Parent Stock

RCR	= Resource Cost Ratio
SATC	= Sinaut Agricultural Training Centre
SER	= Shadow Exchange Rate
SRI	= Social Rate of Interest
WB	= World Bank

CHAPTER I

INTRODUCTION

The early section of this chapter highlights a brief description on Negara Brunei Darussalam (which is then referred to Brunei) economic status. Then followed by a detail discussion on various government policy measures launched to facilitate the non-ruminant sector (broiler and layer) and the ruminant sector (cattle beef and goat). A summary table supports the discussions on each sector policy measures by incorporating the various responsible agencies within the government. This section is also highlighting the objectives, problems as well as significance of the study. Toward the end of the chapter, the organisation of the succeeding chapters is presented.

General Background of Brunei Economy

The Brunei economy is unique among the countries in South East Asian region in that unlike Indonesia, Malaysia, Thailand and the Philippines to name a few, it is a non-agriculture based. It can neither be compared to the Singaporean economy, which is based on manufacturing as well as trading and services. Brunei's economy is largely a crude petroleum economy and its contribution to the total gross domestic product (GDP) in 1997 was approximately 55 percent. The per capita GNP is approximately US\$9,466 (approximately B\$13,252). The agricultural sector (agriculture, fisheries and forestry) contributed to an estimate of about 1.2 per cent of the GDP in 1991; while in 1997 was approximately 2 per cent as shown in Table 1.1 (EPU 1992, DoA 1998).

Table 1.1: Estimates of Gross Domestic Product by Kind of Economic Activity 1981 - 1991

Kind of Economic Activity	1981	1981	1982	1982	1983	1983	1984	1984	1985	1985	1986	1986	1987	1987	1988	1988	1989	1989	1990	1990	1991
1 Agriculture and Hunting	43.50	0.47%	52.70	0.58%	56.90	0.70%	60.30	0.75%	65.80	0.85%	70.80	1.38%	80.20	1.38%	90.90	1.68%	103.10	1.76%	116.80	1.79%	130.80
2 Forestry and Logging	12.20	0.13%	15.40	0.17%	11.40	0.14%	13.10	0.16%	15.30	0.20%	16.30	0.32%	18.10	0.31%	13.20	0.24%	21.90	0.37%	14.00	0.22%	15.00
3 Fishing	8.60	0.09%	9.20	0.10%	11.30	0.14%	12.30	0.13%	13.20	0.17%	11.80	0.23%	14.00	0.24%	16.40	0.30%	19.40	0.33%	22.90	0.33%	25.70
4 Mining, Quarrying and Manufacturing	7,323.70	79.39%	6,990.10	76.60%	5,999.20	73.49%	5,706.10	70.72%	5,376.40	69.35%	2,818.80	54.89%	3,236.00	55.79%	2,592.00	47.87%	2,766.90	47.34%	3,229.30	49.62%	3,096.00
5 Electricity, gas and Water	10.70	0.12%	16.50	0.18%	15.80	0.19%	15.30	0.19%	31.20	0.40%	30.90	0.60%	33.30	0.57%	42.80	0.79%	53.90	0.92%	59.30	0.91%	61.00
6 Construction	216.50	2.35%	264.60	2.90%	265.50	3.25%	207.00	2.57%	159.20	2.03%	170.10	3.31%	183.10	3.16%	195.30	3.61%	254.60	4.36%	277.40	4.26%	291.30
7 Wholesale	794.40	8.61%	750.60	8.23%	672.40	8.24%	726.40	9.00%	658.20	8.49%	434.80	8.47%	460.90	7.95%	448.00	8.27%	469.80	8.04%	493.20	7.58%	499.70
8 Retail Trade	111.60	1.21%	186.20	2.04%	156.70	1.92%	141.30	1.75%	121.80	1.57%	155.50	3.03%	179.70	3.10%	207.60	3.83%	239.80	4.10%	257.30	3.95%	272.70
9 Restaurants and Hotels	27.60	0.30%	38.50	0.42%	51.00	0.62%	42.10	0.52%	41.50	0.54%	40.10	0.78%	45.90	0.79%	52.10	0.96%	59.40	1.02%	67.70	1.04%	73.70
10 Transport, Storage and Communication	61.70	0.67%	133.20	1.46%	143.80	1.76%	116.60	1.45%	136.10	1.76%	123.20	2.40%	233.00	4.02%	244.80	4.52%	266.30	4.56%	281.20	4.32%	297.10
11 Banking and Finance	112.10	1.22%	123.20	1.35%	120.30	1.47%	134.80	1.67%	144.20	1.86%	154.60	3.01%	169.50	2.92%	185.80	3.43%	203.80	3.49%	223.40	3.43%	230.00
12 Insurance	8.50	0.09%	5.40	0.06%	11.20	0.14%	8.10	0.10%	12.90	0.17%	14.40	0.28%	21.20	0.37%	31.10	0.57%	45.70	0.78%	67.00	1.03%	70.00
13 Real Estate and Business Services	84.40	0.91%	99.60	1.09%	107.90	1.32%	112.60	1.40%	102.30	1.32%	58.10	1.13%	59.80	1.03%	61.60	1.14%	63.30	1.08%	65.20	1.00%	67.00
14 Ownership of Dwellings	24.30	0.26%	26.90	0.29%	28.20	0.35%	30.20	0.37%	32.80	0.42%	33.10	0.64%	37.60	0.65%	42.70	0.79%	48.50	0.83%	55.10	0.85%	66.00
15 Community, Social and Personal Services	467.10	5.06%	532.00	5.83%	612.70	7.51%	855.70	10.61%	918.70	11.85%	1,	21.23%	1,126.80	19.42%	1,292.90	23.88%	1,349.20	23.08%	1,420.60	090.20.83%	1,556.70
16 Less Bank Charges	82.40	0.89%	118.50	1.30%	101.10	1.24%	113.10	1.40%	77.20	1.00%	87.10	1.70%	98.30	1.69%	102.70	1.90%	120.70	2.07%	141.90	2.18%	149.00
Gross Domestic Product	9,224.50	100.00%	9,125.60	100.00%	8,163.20	100.00%	8,068.80	100.00%	7,752.40	100.00%	5,135.60	100.00%	5,800.80	100.00%	5,414.50	100.00%	5,844.90	100.00%	6,508.50	100.00%	6,604.30

Source: EPU, 1992

Policy Environment

Agriculture Development Policy

Unlike the other neighbouring countries (with the exception of Singapore), Brunei's economic diversification policy is toward agriculture rather than away from it. More specifically it is toward agricultural production in the first instance and possibly further value added whenever the case permits. Since the agricultural sector contributes only about 2.0 per cent to the GDP in 1997, the objective is to increase this further and the first step necessarily has come from increased output of agricultural produce.

The major area of priority currently is food production. Concerted efforts by the government are being made to promote and facilitate investment in agriculture, particularly in food production, to increase agricultural output. This is seen as a pre-requisite and a precursor to agriculture to agro-industrial development in the form of further processing activities and value added. The vision of the Ministry of Industry and Primary Resources (MIPR) in the food sector is self-sustaining development with meaningful degree of self-reliance. While the philosophy adopted in approaching the food sector is, there should be some form of food security through continuous supplies, stable price, consistent quality and growth in businesses involving basic food security items.

The objective in the development of this sector is to establish the infrastructure for security in the basic food supply. Once this is established, the plan will be to make use of these facilities to maximum benefits without sacrificing security. To further strengthening